

What is Claimed is:

1. An isolated nucleic acid sequence comprising a prostate specific transcriptional regulatory element (TRE) derived from the sequence upstream of the translational start codon for a TMPRSS2 gene, wherein said TRE is specific for prostate cancer cells.
2. The isolated nucleic acid sequence according to Claim 1, wherein said TRE is a human TRE.
3. The isolated nucleic acid sequence according to Claim 2, wherein said TRE has the TMPRSS2 TRE sequence presented as SEQ ID NO:1.
4. The isolated nucleic acid sequence according to Claim 3, wherein said TRE is a functional fragment of the TMPRSS2 TRE sequence presented as SEQ ID NO:1.
5. A replication competent adenovirus vector comprising a prostate specific transcriptional regulatory element (TRE) derived from the sequence upstream of the translational start codon for a TMPRSS2 gene, wherein said adenovirus vector selectively replicates in prostate cancer cells.
6. A replication competent adenovirus vector according to Claim 5, wherein said wherein said TRE is the TMPRSS2 TRE presented as SEQ ID NO:1.
7. The adenovirus vector according to claim 6, wherein said adenovirus vector has a first adenovirus gene essential for replication under transcriptional control of said TMPRSS2 TRE.
8. The adenovirus vector according to claim 7, wherein said first adenovirus gene essential for replication is an early gene selected from the group consisting of E1a, E1b and E4.
9. The adenovirus vector according to claim 8, wherein the adenoviral vector comprises first and second adenoviral genes co-transcribed under transcriptional control of said TMPRSS2 TRE.
10. The adenovirus vector according to claim 9, further comprising an IRES.

11. The adenovirus vector according to claim 9, further comprising a self-processing cleavage sequence.
12. The adenovirus vector according to claim 8, further comprising a transgene.
13. The adenovirus vector according to claim 8, further comprising a second adenovirus gene essential for replication under transcriptional control of a prostate specific TRE, selected from the group consisting of a TMPRSS2 TRE, a PSA-TRE, a PB-TRE and hKLK2-TRE.
14. The adenovirus vector according to claim 13, wherein said second adenovirus gene essential for replication is an early gene selected from the group consisting of E1a, E1b and E4.
15. The adenovirus vector according to claim 8, further comprising a second adenovirus gene essential for replication under transcriptional control of a TERT-TRE or an E2F-TRE.
16. The adenovirus vector according to claim 15, wherein said second adenovirus gene essential for replication is an early gene selected from the group consisting of E1a, E1b and E4.
17. An isolated host cell comprising the adenovirus vector of claim 3.
18. An isolated host cell comprising the adenovirus vector of claim 8.
19. An isolated host cell comprising the adenovirus vector of claim 14.
20. An isolated host cell comprising the adenovirus vector of claim 16.
21. A composition comprising the adenovirus vector of claim 3 and a pharmaceutically acceptable excipient.
22. A composition comprising the adenovirus vector of claim 8 and a pharmaceutically acceptable excipient.

23. A composition comprising the adenovirus vector of claim 14 and a pharmaceutically acceptable excipient.

24. A composition comprising the adenovirus vector of claim 16 and a pharmaceutically acceptable excipient.

25. The adenovirus vector according to claim 12, wherein the transgene is cytotoxic.

26. The adenovirus vector according to claim 12, wherein the transgene is a cytokine.

27. The adenovirus vector according to claim 8, further comprising a polynucleotide encoding adenoviral death protein (ADP).

28. An adenovirus vector according to claim 12, further comprising a polynucleotide encoding adenoviral death protein (ADP).

29. The adenovirus vector of claim 26, wherein said cytokine is GM-CSF gene.

30. The adenovirus vector according to claim 12, wherein said transgene is under transcriptional control of a prostate specific TRE, selected from the group consisting of a TMPRSS2 TRE, a PSA-TRE, a PB-TRE and hKLK2-TRE.

31. The adenovirus vector according to claim 12, wherein said transgene is under transcriptional control of a TERT-TRE or an E2F-TRE.